

ABSTRACT OF THE DISCLOSURE

Segmentation of background and foreground objects in an image is based upon the joint use of range and color data. Range-based data is largely independent of color image data, and hence not adversely affected by the limitations associated with color-based segmentation, such as shadows and similarly colored objects. Furthermore, color segmentation is complementary to range measurement in those cases where reliable range data cannot be obtained. These complementary sets of data are used to provide a multidimensional background estimation. The segmentation of a foreground object in a given frame of an image sequence is carried out by comparing the image frames with background statistics relating to range and normalized color, using the sets of statistics in a complementary manner. A background model is determined by estimating using a multidimensional histogram, recording pixel values, configuring the pixel values into a cluster, and selecting a largest cluster as representing the background model.